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HIGHER EDUCATION AND UNEMPLOYMENT--SOME PARADOXES.

BY- EVANS, ROBERT C.
SAN JOSE STATE COLL., CALIF.

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TWO ECONOMIC FACTORS MOTIVATE YOUNG PEOPLE TO CONTINUE THEIR EDUCATION--INCREASE IN EMPLOYMENT AND INCOME PROSPECTS, AND THREAT OF UNEMPLOYMENT. BECAUSE THE AVERAGE EDUCATIONAL LEVEL OF THE WORK FORCE HAS INCREASED, HIGHER EDUCATION SERVES AS AN ALTERNATIVE TO UNEMPLOYMENT. IN A STUDY OF THE VALUE OF A COLLEGE EDUCATION, MILLER AND GLICK ESTIMATED THE MONEY VALUE OF A COLLEGE EDUCATION TO BE $103,000. SCHULTZ HAS FOUND THAT A COLLEGE EDUCATION INCREASES ITS REWARDS OVER TIME. A LARGER PERCENTAGE OF FIRST DEGREE GRADUATES NOW CONTINUE STUDY FOR ADVANCED DEGREES. SCITOVSKY FINDS THAT THE LONG-RUN TREND OF PROFESSIONALS' INCOME IS RELATIVELY DECLINING BECAUSE OF THE INCREASING SUPPLY OF EDUCATED PEOPLE. JOB UPGRADING RESULTS FROM THE INCREASED SUPPLY OF EDUCATED PEOPLE, AND THIS TAKES ITS FINAL FORM AS YOUTH UNEMPLOYMENT. THIS PAPER APPEARS IN "SENIOR SEMINAR IN ECONOMIC RESEARCH," SPRING TERM, MAY, 1966, AND IS ALSO AVAILABLE FROM THE ECONOMICS DEPARTMENT, SAN JOSE STATE COLLEGE, SAN JOSE, CALIFORNIA. (HW)

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by
DR. LESLIE E. CARBERT
Planning Officer
State Office of Planning
Department of Finance

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STUDENT EDITOR
ROBERT C. EVANS

SEMINAR DIRECTOR
DR. MARVIN E. LEE

ECONOMICS DEPARTMENT

SAN JOSE STATE COLLEGE

SAN JOSE, CALIFORNIA

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HIGHER EDUCATION AND UNEMPLOYMENT: SOME PARADOXES

Since the turn of the century higher education has played an increasingly important role in American society. Expanding government investment in public education on the federal, state, and local level and increased scholarship aid by private colleges have for many significantly reduced the financial barriers to higher education. Perhaps more important the increase in United States per capital real income due to economic growth over the years enabled more and more parents to send their children to college. This increased national wealth is making it realistically possible for us to reach the social goal of equal quality of educational opportunity.

But the trend toward lengthening the years of education both in college and beyond to higher degrees introduces important economic cost barriers to the goal of equal quality of educational opportunity. Since college and university enrollments are almost certain to expand, renewed attention should be paid to those economic factors which encourage students to attend college and graduate schools. In particular, the social and economic implications of the effects of unemployment on higher education need to be explored more fully to permit realistic planning for higher education.

Young people are motivated to continue their education for among others two economic reasons: to increase their employment and income prospects, and to avoid the threat of unemployment. The unemployment effect on college and graduate enrollments has been shown by two previous San Jose economic research seminar papers to be coincident with economic flutuations.[1]

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[1] "Senior Seminar in Economic Research," San Jose State College, May, 1964 and May, 1965.

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Today young people entering the labor force find that it is often difficult to obtain employment. Since the average educational level of the work force has greatly increased, employers are now able to fill job vacancies with workers who have higher levels of educational attainment than was the case previously. Those with relatively lower educational qualifications, therefore, tend to bear the brunt of unemployment. Consequently, higher education serves as an alternative to unemployment to those who have sufficient financial support and desire to gain a competitive advantage in the labor market. As the availability of higher trained labor increases, however, employers tend to increase further the educational requirements of prospective employees. Thus,there is a general upgrading of job requirements due to a relative oversupply of higher trained labor.[2] Further compounding the problem is the fact that the planning, financing and expansion of higher education is at the state and local level, while federal employment and military manpower policy remains essentially the primary governmental source for contending with the nationwide problem of youth unemployment.

Studies attempting to show the value of a college education have been given increased attention by economists. Herman P. Miller and P. C. Glick in 1956 estimated the money value of a college education to be $103,000.[3] They found that the average lifetime earnings of a high school graduate was $165,000 compared to $286,000 for the college graduate. A later study by

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[2]"Technology and the American Economy," National Commission on Technology Automation, and Economic Progress, Vol. 1, Feb. 1966.

[3]P. C. Glick and H. P. Miller, "Educational Level and Potential Income," American Sociological Review, June, 1956.

Miller in 1958 found that the earnings attributable to a college education had increased slightly over the 1956 estimate.[4] The results of Shultz's study are shown in Table I.[5]

TABLE I

Income received from ages 25 to 64, for males by level of school completed for the United States 1939, 1946, 1949, 1956, 1958.

High School--College Differential

Year	High School Graduate	College Graduate	% Difference
1939	$67,383	$104,608	55
1946	114,023	168,983	48
1949	148,649	241,427	62
1956	208,332	340,131	63
1958	215,487	366,990	70

Note that the percentage difference in earnings has steadily increased from 55 percent in 1939 to 70 percent in 1958 indicating that it is becoming economically more rewarding to get a college education; that is, the financial rewards for the college educated have over the short period increased. However, at the same time that incomes of college graduates increased relative to high school graduates, the incomes of professionals have decreased relative to the growth in national product.

In a recent article published in the American Economic Review, Tibor Scitovsky reported the results of a study on the long run trends of relatively

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[4]Herman P. Miller, "Annual and Lifetime Income in Relation to Education: 1939-1959," American Economic Review, L (June-Dec., 1960), p. 982.

[5]Theodore W. Schultz, "Education and Economic Growth," in Social Forces Influencing American Education, 1961, Sixtieth Yearbook of the National Society for the Study of Education.

declining incomes in the professions.[6] Scitovsky attributes the relative decline in the earnings of professionals to factors such as "the increasing supply of educated people," and to "the slower than average rise in the productivity of professional people." Scitovsky also suggests that short run inflation may have a depressing effect on professional income since the incomes in the professions are often greatly influenced by tradition.

Scitovsky compares the incomes of five professional groups in the United States, Canada, and several Western European countries with per capita real income in the respective countries since the turn of the century. He found a remarkable similarity in their experience of declining relative professional incomes. The professions examined included physicians, lawyers, dentists, full professors, and high civil servants. All of the professions that Scitovsky examines are relatively old and established, and with the exception of physicians and dentists, the types of work have not been greatly altered by technological change. Lawyers, professors, and high civil servants do essentially the same type of work with basically the same methods as they did three quarters of a century ago. In these groups it is likely that their declining relative income may in part be influenced by tradition. However, increases in the relative supply of these professions have also been a major factor influencing the relative decline in their incomes.[7]

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[6]Tibor Scitovsky, "An International Comparison of the Trend of Professiona Earnings," AER, March, 1966. "This trend has been noted not only in the United States but in most Western countries...". op. cit., p.24.

[7]Tibor Scitovsky, op. cit.

TABLE II

Year	U. S. Physicians	U. S. Dentists	U. S. Lawyers	U. S. Professors	U. S. Civil Servants
1900					7.8
1904				3.8	
1910				3.7	6.1
1920				2.1	3.2
1929	2.9	2.4	3.1		
1930	3.2	2.7	3.4	3.7	6.1
1935	3.4	2.3	4.0	4.4	8.2
1939	3.2	2.4	3.3	4.3	7.1
1948	3.2	2.0	2.3	2.1	2.8
1950	3.3	2.0	2.2	2.0	
1951	3.2				
1952		2.5	2.1	1.9	3.9
1955		2.6			
1956	3.8		2.3	1.9	3.5
1958	4.2	2.8	2.4	2.1	4.1

Adapted from "An International Comparison of the Trend of Professional Earnings," Tibor Scitovsky, AER, March, 1966.

In the U. S. noted in Table II above three of the groups earning multiples have declined, while the earning multiples of both physicians and dentists have risen. All three factors, the lag in productivity, increased relative supply, and the role of tradition, probably account for the decline in lawyers' income. Conversely, the decline in the multiples of high civil servants can, with the exception of short run flutuations, probably be attributed to none of the factors since their salary is essentially based upon political decision.[8] In the U. S. physicians are the only group whose earning multiple has greatly increased, and this is probably due to the medical profession's success in restricting entry into the field and to expanded medical insurance plans.[9]

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[8] Ibid.

[9] It should be noted, however, that the training time of doctors has increased and therefore their lifetime earning may not have increased relative to national product.

The influence of tradition and the general price level are clearly illustrated in the table. Table II also indicates that the earning multiples rose in the lawyer, professor, and civil servant groups during the 1930's depression but declined as the price level rose during World War II and the post war period.

The influence of an increased relative supply on earning multiples is difficult to isolate from the other determinants in Scitovsky's study. Certainly in the case of physicians, the lower rate of increase in supply played an important part and that restriction has probably been a major factor accounting for their relatively higher incomes. The increased relative supply has probably contributed greatly to the decline in incomes in the other professions in the United States too, since in countries such as the United Kingdom which severely restrict entry into universities, the relative incomes of professionals though also declining are higher than in the United States.[10]

In certain other professions not covered by the Scitovsky study relative income has also declined. Table III adapted from the Blank-Stigler study illustrates the declining growth rate of engineers' incomes.[11] The ratio to net income of lawyers to engineers has, in the long run remained close to 100, thus the incomes of both groups have grown at about the same rate. But compared to the fulltime wage earners' income earnings of engineers have declined.

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[10]Tibor Scitovsky, op. cit.

[11]Blank and Stigler, The Demand and Supply of Scientific Personnel, (New York: National Bureau of Economic Research, 1957).

TABLE III

Index of Ratio of Median Engineering Salary to Average Wage and Salary or Net Income of Selected Occupations. 1929-1954, 1929 = 100

Year	Ratio to Earnings Per Fulltime Wage Salary Employee	Ratio to Earnings Per Fulltime Wage Earner	Ratio to Net Income of Lawyers	Ratio to Net Income of Physicians
1929	100.0	100.0	100.0	100.0
1932	102.0	109.1	108.3	133.7
1934	93.6	97.3	95.4	112.4
1939	106.4	108.5	120.8	118.3
1943	83.2	76.0	107.6	72.2
1946	80.9	83.1	108.0	69.4
1949	69.9	70.8	98.5	63.1
1950	67.9	67.6	95.9	61.3
1951	66.2	65.4	95.6	59.5
1952	68.1	66.8	101.9	
1953	67.9	66.1	102.2	
1954	67.9	66.6	96.6	

Adapted from the Blank-Stigler study, The Demand and Supply of Scientific Personnel.

The decline in engineer's relative income is understandable when we consider the increase in the supply of engineers. Between the years 1940 to 1959, the number of engineers in the United States increased from 286,000 to 800,000 or 2.8 times. The number of scientists during the same period increased from 92,000 to 310,000 or 3.4 times.[12] Real National Product during this period increased 2.1 times. The supply of engineers and scientists, therefore, increased at a faster rate than real product. It is the conclusion of Blank and Stigler that supply has outraced demand for engineers with the result that, in general, employers have probably absorbed the increased number by upgrading job requirements.

It is our interpretation of these data that as the availability of

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[12]Selma J. Mushkin, (editor), Economics of Higher Education (Washington: U. S. Government Printing Office, 1962), p. 59.

higher education increases, increasing numbers of college graduates entering the labor market compete with the high school graduate for employment. Employers seeking to obtain the best quality labor give initial preference to the relatively higher cost college graduate. As the general educational level rises. However, the income of the higher educated and professional declines relative to national product. The relatively less well educated job seeker,in turn, is forced into lower job classifications. This latter phenomenon was observed in the study by the President's Commission on Technology and the American Economy.

> In a slack market employers must have some means of selecting among numerous applicants, and it is not surprising that educational attainment is often used as a convenient yardstick regardless of its direct relevance to the requirements of the job.[13]

Thus, the general upgrading of jobs increases the unemployment rate among the relatively less well educated. The young among this group have no alternative but either to go on the unemployment rolls or train upward. Not only does the financial reward of a college education act as an economic incentive, the threat of unemployment acts as a further inducement to higher college enrollments.

The upgrading of jobs is not necessarily applicable only to the lower income categories. It is likely that this practice has been continuous through the professional classifications. Many persons after graduating with a bachelor's degree find that they can't qualify for the job they would like. So they go back to school for a master's degree. Table IV shows the increasing percentage of first degree graduates who go on for a master's degree.[14]

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[13]"Technology and the American Economy," op. cit. p. 23.

[14]Fritz Machlup, The Production and Distribution of Knowledge in the United States (Princeton University Press, 1962), p. 91.

Table V indicates the additional rewards available on the average for additional years of college.

TABLE IV

Earned Degrees Conferred by Level of Degree

Year	Bachelor's or First Professional	Master's or Second Professional	Master's as a % of Bachelor's
1900	27,410	1,583	5.8
1910	37,119	2,113	5.7
1920	48,622	4,279	8.8
1930	122,484	14,969	12.2
1940	186,500	26,731	14.3
1950	432,058	58,183	13.5
1955	285,135	58,165	20.4
1960	405,000	75,700	18.7

The large increases in first degree graduates is due to the large number of veterans who attended under the G. I. Bill. The large quantity of master's degree graduates in 1955 may well be caused by the large number of men discharged after the Korean conflict who had postponed or were encouraged to pursue graduate work. Table IV indicates that the trend toward a larger percentage of first degree graduates to go on for advanced degrees is continuing.

TABLE V

Comparison of Average Yearly Salary of College Trained Personnel in Selected Occupational Groups

	Age Group 25-64 Salary	Age Group 25-34 Salary
Managers, Officials, and Proprietors		
Education		
Four years of college	14,115	9,169
Over four years	14,362	9,208
Five or more years	14,978	9,331
Electrical Engineers		
Education		
Four years of college	9,429	8,156
Over four years	9,732	8,481
Five or more years	10,243	9,108
Insurance Underwriters, Agents, and Actuaries		
Education		
Four years of college	9,444	7,059
Over four years	9,491	7,139
Five or more years	9,653	7,488

Source: Adapted from the Blank-Stigler Study: The Demand and Supply of Professional Personnel.

While job upgrading serves as an adjusting mechanism for a relative oversupply of professionals, the ramifications of the shift affect all levels of the income scale and take a final form as youth unemployment. Since the turn of the century there has been a general decline in the labor force participation rate of young persons and a corresponding rise in college enrollment rates. Since the mid-fifties the unemployment rate of 18 to 19 year olds has increased to the level of 16 percent in 1960. The data on participation rates, unemployment rates, and enrollment rates is given in Table VI.[15]

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[15] U. S. Department of Commerce, Current Population Reports, Labor Force Series, Washington D. C., p. 57.

TABLE VI

Unemployment Rate, 18-19 Years, Male, Participation Rate, 14-19 Years, and Total College Enrollment, 18-21 Years

Year	Unemployment rate, Male, 18-19 Yrs. Percent	Participation Rate, 14-18 yrs., %	Total Enrollment 18-21 Yrs., % of all 18-21 yrs.
1950	10.4	39.2	27.2
1952	6.6	37.3	24.6
1954	11.3	36	27.8
1956	9.5	36	30.9
1958	16.6	34.2	30.7
1960	16.5	35.4	33.5

As may be seen in the above table, what is happening fits in well with our thesis. Not only have fewer young people, as a percentage of their age group, entered the labor force, but also there has been a general upward shift in unemployment and enrollment is this group. The gradual increase in the unemployment rate among 18 to 19 year olds is attributed primarily to the inadequate aggregate demand that existed during the fifties. Whenever there is slack in the economy, employers become more selective in hiring job applicants and initiate practices using educational attainment as criteria.[16] Young people without education or skill during these periods often cannot find work, and many leave the work force to enroll in school or are discouraged from entering the work force and continue on to college, as the figures on the declining labor force participation rate for 14 to 18 year olds and rising enrollment rates indicate. Therefore, it is both necessary and worthwhile for a person to enter college if he wishes to increase his chances for economic security. Let us now consider the benefits that society receives from higher education.

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[16] Fritz Machlup, op. cit. p. 125.

Schultz calculated the returns to educational investment by comparing additional lifetime earnings of the college graduate, of the high school graduate, and of persons who completed the first eight years of school. (He compared the latter to those who completed less than eight years.) Table VII shows Schultz's calculation of the returns of educational investment. The returns are computed by dividing additional lifetime earnings of graduates by the cost of that education.[17] The ratios illustrate the increasing returns to the individual received from a college education.

TABLE VII

The Returns to Educational Investment of Males 18-64, in the United States by Years of School Completed for 1939, 1949, 1956, 1958

Years of School Completed	Returns to Educational Investment by Year			
	1939	1949	1956	1958
College	8.97	9.73	9.77	10.96
High School	15.3	10.36	11.27	11.80
Elementary	34.9	39.5	38.9	40.2

Source: Theordore W. Schultz, "Education and Economic Growth."

Schultz's data shows that during the short run period of sustained economic growth since 1939 returns to higher education have been impressive.[18] However, both the studies by Scitovsky and by Blank-Stigler cited above indicate that over the long run the incomes of professionals and the higher educated have been declining relative to the growth in national product.

From the point of view of society as a whole, considering only the short

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[17] Theodore W. Schultz, op. cit.

[18] It is likely that the returns to higher education are not so high as Schultz's estimates indicate. For instance, comparisons of W. W. II veterans by age and education would show a more homogeneous grouping with substantially lower rates of return to educational investment. See H. P. Miller, "Income and Education : Does Education Pay Off," Economics of Higher Education, (ed.), Muskin, op. cit.

run, one might conclude as did Machlup that

> society at large may not benefit from the additional years of education, and the income differential earned by college graduates is not due to the educational effects but only to the selective function of the college. Where it serves only as a test of qualifications, college education may be downright wasteful.[19]

However, in the long run it is likely that the income differential earned by graduates will be reduced by competition to the economic cost of obtaining the higher degrees. Further, it does not appear that the economy requires the present level of formal education of the labor force when one considers that

> Japan and Western Europe operate sophisticated economies with educational profiles far inferior to our own, and there is reason to believe that a highly automated economy could be engineered to fit a variety of educational profiles.[20]

If this is the case, then much of the college education of the labor force may not be economically necessary. Consequently, governmental decisions justifying expanded higher educational expenditures must be based upon important non-economic social goals and benefits such as the widely accepted democratic social goal of equal quality of educational opportunity. However, in deciding on whether to pursue social or economic goals, the disturbing effects of economic waste through unemployment and underutilization of higher trained labor, and excessive competition for upgraded jobs should be carefully considered. Thus, the quandry of public higher education is to expand in order to reach the goal of educational opportunity for all while simultaneously preventing the educational system from being expanded into a holding ground of low public cost unemployment insurance. It is important to remember that

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[19]Fritz Machlup, op. cit., p. 115.

[20]"Technology and the American Economy," op. cit., p. 21.

the costs to the individual student and to his family in years of additional training are very high even when education is free.

It should also be noted that the continuing efforts to raise artificially the requirements for entry into college cannot succeed in restricting entry without negating the goal of equal quality of educational opportunity. Similarly, lengthening of the training time for degrees and professional credentials impose essentially arbitrary higher costs on those who desire to continue their education. It also erects and supports enlarged educational bureaucracy, which in turn restricts entry of youth into productive work. The imposition of additional fees and tuition will further reduce the relatively low individual benefits of obtaining a college education. Finally, the economic restrictions imposed by higher costs or longer training time will be magnified under conditions where the long run trend is toward relatively lower professional incomes. Previous generations rather than future generations will have derived a larger private benefit from higher education.

The problem of state and local finance of higher education is, then, that higher education in part serves as an unemployment preserve, while federal policies are the sole vehicle for coordinating the interaction of employment and education. Since the opportunity cost for education of the unemployed is zero, the potential returns from education for employment is very high. Federal aid to higher education, when coordinated with a full employment policy, could be used effectively to solve the problem of underemployment and unemployment of youth and simultaneously promote state and local government goals of equal quality of educational opportunity. In any case, the problem appears to be one of unemployment and underemployment, and the solutions should be sought in federal support for high education and more adequate national, state, and local educational and employment policies.

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